



January 21, 2019

California Department of Water Resources
Strategic Water Planning Branch
P.O. Box 942836
Sacramento, CA 94236-0001

Sent via email: cwpcor@water.ca.gov

RE: California Water Plan Update Recommended Action 6.2 – Coordinate Climate Science and Monitoring Efforts - Support

We are writing in support of the California Department of Water Resource's (DWR) Draft Water Plan Update Goal 6.2: Coordinate Climate Science and Monitoring Efforts. We are pleased this provision proposes an increased level of coordination of critical climate science and monitoring efforts including research to track atmospheric rivers.

We strongly support such efforts to advance coordination of critical climate science and monitoring efforts designed to track atmospheric rivers. The importance of precipitation due to atmospheric rivers is widely recognized, and improved forecasting of these precipitation events will lead to increased capture of stormwater and improved flood risk management. Atmospheric river forecasting for reservoir operations is being initially explored in several areas of the state, including Lake Sonoma, Lake Mendocino, and at Prado Dam on the Santa Ana River.

Atmospheric river storms provide over 50 percent of the rainfall into the Russian River Watershed, which is in Sonoma Water's service area, and is responsible for a majority of major flood events. Atmospheric river science and technology will help Sonoma and the U.S. Army Corps of Engineers better manage water releases from Sonoma's two reservoirs.

Predicting the timing and intensity of the critical precipitation events that occur as a result of atmospheric rivers is essential to providing water managers and dam operators with the information needed to optimally operate reservoirs. Improved prediction capacity for atmospheric river precipitation events will require additional investments in monitoring, modeling and decision support tools.

California water agencies are actively working to develop Forecast Informed Reservoir Operations (FIRO) for dams resulting in better reservoir management to save water and

reduce the risk of flood events, improvements in the availability of public water supplies and increased safety for the local community. Forecast modeling available to Turlock Irrigation District and other regional water entities is limited in scope and does not account for the unique qualities and conditions specific to the Western United States. In 2018, using new modeling enabled by Forecast Informed Reservoir Operations (FIRO), Turlock operators were able to forecast extreme weather events with more accuracy and, as a result, saved approximately 150,000 acre-feet of water for irrigation customers.

FIRO uses data from watershed monitoring programs and improved weather and water runoff forecasting to help water managers selectively retain or release water from reservoirs in a flexible manner that more effectively reflects prevailing and anticipated conditions. FIRO represents an innovative use of emerging science and technology to optimize limited resources and improve regional water supply in a changing climate.

FIRO is also being used to coordinate watershed recovery efforts since devastating fires scorched more than 240,000 acres and leveled over 6,800 homes in October 2017. Improved precipitation prediction will provide the data needed for the National Weather Service to create hazard weather forecasts needed to alert residents about potential mudslides and large stream flows within burn zones.

The ability to reduce reliance on imported water from the Colorado River and Northern California is dependent on increasing our ability to capture stormwater released from dams in Southern California. The Orange County Water District is developing FIRO to inform operations of the Prado Dam, located in the Santa Ana River Watershed, in partnership with the U.S. Army Corps of Engineers, National Oceanic and Atmospheric Administration and the Scripps Institution of Oceanography. Advancing research and observations for unique region-specific forecasts may permit the capture of up to 30,000 acre-feet of water behind Prado Dam per year. Staff from DWR, Sonoma Water and the United States Fish and Wildlife Service are also participating on a Steering Committee for development of FIRO at Prado Dam.

Yuba Water Agency's plans to build a \$160 million secondary spillway at New Bullards Bar Dam will benefit from the latest research and forecasting tools like FIRO. This program will provide public safety value to the residents of Yuba and Sutter Counties. Also, the ability to better forecast atmospheric rivers and to fully understand the data, science, and modeling associated with weather events, will improve reservoir management in the San Diego region and throughout the state, thereby increasing water supply and the reliability of water resources in the state.

Given the importance of atmospheric river storms on water supplies in California, FIRO represents a methodology to take advantage of our increasing understanding of atmospheric storms which are infrequent but provide a large percentage of total precipitation. While the signatories of this letter have invested local resources to further understanding of Atmospheric Rivers and FIRO, state funding support is also necessary

to achieve greater understanding and model prediction capability of atmospheric rivers to the benefit of the entire state of California.

Please let us know if you need any additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read "M. Markus".

Michael R. Markus, P.E.,
D.WRE, BCEE, F.ASCE
General Manager
Orange County Water District

A handwritten signature in blue ink, appearing to read "Grant Davis".

Grant Davis
General Manager
Sonoma Water

A handwritten signature in blue ink, appearing to read "Josh Weimer".

Josh Weimer
Government Affairs Manager
Turlock Irrigation District

A handwritten signature in blue ink, appearing to read "Curt Aikens".

Curt Aikens
General Manager
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A handwritten signature in blue ink, appearing to read "Maureen Stapleton".

Maureen Stapleton
General Manager
San Diego County Water Authority